DRAFT FISH AND WILDLIFE COORDINATION ACT REPORT

ON THE

INTEGRATED GENERAL REEVALUATION REPORT SUPPLEMENT AND ENVIRONMENTAL ASSESSMENT

FOR THE CENTRAL AND SOUTHERN FLORIDA PROJECT: CANAL C-111

Prepared by:

Jim F. Boggs
U.S. Fish and Wildlife Service
South Florida Restoration Office
Vero Beach, Florida

November 1998

EXECUTIVE SUMMARY

The General Reevaluation Report for the Central and Southern Florida Project: C-111 (GRR) was finalized May 1994 and provided a reformulation and assessment for completing the authorized project. Several alternative plans were evaluated in the GRR, including the selected Alternative 6a. This alternative was designed to restore hydrologic elements (primarily hydroperiod) of the natural Everglades ecosystem by reducing water losses in Everglades Nationa Park (ENP) due to sub-surface seepage. The supplement to the GRR includes the addition of new authorities regarding cost sharing, water quality, and land issues that were previously mentioned within the GRR/EIS.

The supplement to the GRR proposes the construction and operation of additional detention and buffer zone capacity at the northern extremity of the 1994 authorized project, providing a higher degree of seepage reduction and nutrient assimilation. Under "with project" conditions, project modifications in the Rocky Glades and Frog Pond areas are designed to reduce seepage losses from ENP to the L-31N, L-31W, and C-111 canals. This will decrease the flow of "clean" ENP groundwater into these canals. However, water quality research associated with this project indicates that the project could effectively increase pollutant concentrations in ENP lands by transporting nutrient-rich waters from nearby agricultural lands to the Rocky Glades area, west of L-31N.

As described, the proposed project should extend hydroperiod to Rocky Glades lands, encouraging the restoration of these wet prairies by providing hydrologic conditions conducive to the establishment of muhly prairie species (ie. *Muhlenbergia* spp.) and minimization of exotics and woody invasion. Proposed operation of the project would incorporate natural seasonal hydrologic cycles with flood control to benefit developed lands to the east of L-31N.

Unfortunately, adequate water quality and hydrologic modeling necessary to predict project effects on Everglades environments are not currently available, leaving some degree of doubt regarding the balance between project benefits and impacts to Everglades natural resources. Evaluation of the selected alternative was primarily performed at a conceptual level in the absence of modeled conditions.

The FWS is supportive of restoration projects that provide ecosystem benefits, particularly for the Everglades ecosystem of south Florida. Successful implementation of natural hydroperiod and overland sheetflow would be a significant step forward in efforts to restore south Florida's Everglades to a more natural condition. However, in the absence of applicable predictive modeling for water quality and hydrologic "with project" conditions, FWS support is contingent upon the future integration of anticipated data (ie. from hydrologic modeling, water budget, water quality monitoring) into final project design to avoid negative impacts from potential water-borne pollutants. Furthermore, FWS support is qualified by the development and implementation of a project operations plan which places the highest priority on environmental protection and conservation, while regarding flood control aspects at a lower priority.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecosystem Office
P.O. Box 2676
Vero Beach, Florida 32961-2676

September 18, 1998

Colonel Joe R. Miller
District Commander
Jacksonville District
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Attention: Planning Division

RE: C-111 General Reevaluation Report

Dear Colonel Miller:

The U.S. Fish and Wildlife Service (FWS) has prepared this Planning Aid Letter (PAL) for the Supplement to the May 1994 Final Integrated General Reevaluation Report (GRR) and EIS, Modified Water Deliveries to Everglades National Park and Canal 111 (C-111), South Dade County, Florida. This Feasibility Study will result in an Environmental Assessment (EA). The South Florida Water Management District (SFWMD) is the local sponsor for this project. This PAL is provided in accordance with the Fish and Wildlife Coordination Act (FWCA) of 1973 (48 Stat. 401, as amended: 16 U.S.C. 661 *et seq.*) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

This PAL does not constitute the report of the Secretary of Interior as required by section 2(b) of the FWCA, nor does it constitute a biological opinion under section 7 of the ESA. This PAL summarizes our preliminary findings for the No Action, Alternative 1, Alternative 2, Alternative 3, and Alternative 4. Due to the lack of quantitative information specific to this study, the rapid pace of evaluating alternatives, and the need to provide timely input to your planning; we have evaluated the alternatives from a qualitative perspective and have not included literature citations, which we would provide in a FWCA Report or a PAL under other circumstances. Due to the conceptual level of detail for this study and the potential for future changes in design for this project, the position of the FWS in this and all subsequent PALs is subject to change.

DESCRIPTION OF STUDY AREA

The study area is located along the central-eastern boundary of the Everglades National Park (ENP), southern Dade County, approximately 15 miles southeast of Homestead, Florida. Habitat in the study area is a mosaic of freshwater wetlands varying in hydroperiod, soil/substrate, vegetative cover (muhly, sawgrass), and land use (natural, agricultural, water resource management). Topography is flat and level plains/rocky glades, with only a slight gradient from north to south (approximately 0.33 feet per linear mile). Water transported through the study area (precipitation, diversion, flood) generally drains into Taylor Slough, eventually flowing into Florida Bay.

DESCRIPTION OF PROJECT

The objective of the authorized, May 1994 GRR is to restore more natural hydrologic conditions to areas of ENP, particularly Taylor Slough and its headwaters in the Rocky Glades area west of L-31N, and to maintain existing flood protection and other project purposes east of L-31N and C-111. To provide for higher stages and longer hydroperiods in ENP, a detention area and a buffer zone would be created east of ENP and west of L-31N/C-111, to protect the developed areas east of L-31N. To create the buffer zone, a new levee (S-332D tieback), would be constructed parallel to and west of L-31N/C-111. Four pump stations (S-332A-D) are to be constructed along with canals, to move water from canal L-31N through the buffer zone to the detention area.

To provide for detention flows from the S-332A pump station and satisfy the May 1994 GRR objective, the Supplement will recommend a plan that includes a levee extending from the L-31W tieback levee. A new levee, designated as the L-31W tieback extension, will be recommended that transverses an area west of L-31N, tying into the authorized L-31W tieback levee, at a location west of S-332A. This levee will form the northern boundary of the detention area. Designation of levee locations in the Supplement will allow determination of ENP land to be included in the Federal cost-sharing total as outlined by the new percentages in Water Resources Development Act of 1996.

THREATENED AND ENDANGERED SPECIES

The endangered Cape Sable Seaside sparrow (*Ammadramus maritima mirabilis*) is a primary species of concern in regard to this project. Because of the proximity of the project area to an existing sparrow subpopulation, we are concerned about the potential loss of designated critical habitat resulting from the construction of this project. All proposed alternatives describe project features (ie. levee construction, inundation/detention) which would likely impact designated critical habitat.

Endangered snail kites (*Rostrhamus sociabilis*) residing in Florida are typically found in the Everglades, Lakes Okeechobee and Kissimmee, and the St. Johns River. They have a highly specific diet composed almost entirely of apple snails (*Pomacea paludosa*), leaving their survival

greatly dependent upon the hydrology and water quality of these watersheds. Modification to the existing hydroperiod of the project area by operation of the detention zone could effect snail kite usage of the project area.

Endangered wood storks (*Mycteria americana*) utilize marshes, cypress swamps, and mangrove swamps for foraging and reproduction. Historically, 70% of the total nesting effort of North American wood storks occurred in South Florida. Because these wetland habitats have been disrupted by changes in the distribution, timing, and quantity of water flow; reproductive efforts of this bird in south Florida have declined to approximately 35%. If these data are indicative of the ability of degraded South Florida ecosystems to support wood stork nesting, then these ecosystems are functioning at approximately 50% of their previous capacities. Improvements to these conditions would be vital to the recovery of this species.

A small population of endangered Florida panthers (*Felis concolor coryi*) uses the ENP in the vicinity of the proposed project. Of the thirty to fifty estimated individuals inhabiting the State of Florida, five to ten reside in ENP. Recent telemetry data published by ENP research staff indicate that 1 to 2 adult panthers utilize lands within the scope of the proposed tieback levee (S-332A).

Impacts to the natural hydrologic regime of Everglades wetlands is directly associated with declines of these above-mentioned species. The Corps of Engineers should make every effort to effectively incorporate the needs of these declining species into the design and operation of this project.

DESCRIPTION OF ALTERNATIVE PLANS

Generally, as described, Alternatives 1 thru 4 are conceptually identical, differentiated primarily by levee footprint, overall levee length, and varying areal involvement (detention capacity) between the tieback levees (L-31W and L-31N). These alternatives each describe a tieback levee system which connects the Seepage Collector and Levee immediately west of the 8.5 Square Mile Area to the L-31N tieback levee, providing additional flood protection eastward and detention capacity. Each structural alternative appears to be designed to adequately satisfy the objectives of the Supplement to the GRR, providing detention flows from the S-332A pump station and maintaining protection to privately developed lands to the east. The "No Action" alternative describes construction of the L-31W tieback levee (terminating at the S-332B pump station) with detention zone, and the S-332D tieback levee which proceeds 1 to 1.5 miles west of the L-31N levee. The S-332D tieback levee extends beyond the L-31W levee, terminating approximately 6 miles northeast of pump station S-332B at the S-332D pump station. The "No Action" alternative, authorized in May 1994 (C-111 GRR/EIS), provides no additional flood protection or detention capacity.

POTENTIAL IMPACTS

The creation of a water detention reservoir would convert seasonally/temporarily flooded wetlands and/or muhly plains to permanently flooded palustrine and/or lacustrine wetlands within the proposed detention zone (approximately 0.5 mi. X 2 mi.). The degree of conversion would depend upon the periodic operation of Pump S-322A. Habitat conversion would significantly alter the floral and faunal communities residing within the detention zone between the L-31W and the S-332D tieback levees. Generally, direct impacts to inundated areas between the tieback levees would be the same as documented in the 1994 GRR for the proposed detention reservoir which terminates immediately south of S-332B.

Conversion of existing habitat from the construction and operation of structural alternatives would likely convert some designated critical habitat for the Cape Sable Seaside sparrow. To adequately evaluate impacts to this subspecies, the evaluation of current sparrow survey data in correlation with hydrological modeling data (pre- and post- project baseline hydrology and hydroperiod), borrow/fill site locations, and characterization and area of affected habitat(s) would be necessary to appropriately address potential impacts. A complete data set regarding these issues could not be provided to the FWS at this time, but should be available prior to construction. Without these data for evaluation throughout the planning study the FWS will not be able to adequately consult on the Cape Sable Seaside sparrow under section 7 of the ESA.

Also, project management should be aware of the potential for shifts or expansion of distribution of avian species such as the Cape Sable seaside sparrow and expect changes in habitat usage by this subspecies in the future. To insure that proposed project features and operation do not adversely impact this species, data from annual sparrow surveys should be evaluated throughout the planning process and prior to construction. Presently, sparrow surveys are being performed by ENP staff in association with the University of Tennessee, Department of Ecology and Evolutionary Biology (Dr. Stuart Pimm).

Downstream effects to natural resources would likely be positive, providing detention flows during typically dry periods and restoring some degree of natural hydroperiod to the C-111 basin. Restoration of natural hydrologic features to the eastern Everglades could greatly benefit resident biological communities by reducing the incidence and intensity of fires, thereby promoting and perpetuating the establishment of native vegetative cover and soil integrity.

EVALUATION AND COMPARISON OF ALTERNATIVES

Ideally, the best alternative would provide authorized (1994 GRR/EIS) detention flow benefits, while excluding or minimizing impacts to wildlife and habitat. Effort should be given to minimize losses to designated critical habitat for the endangered Cape Sable seaside sparrow and wetlands in ENP. Designated critical habitat for this species exists along the eastern boundary of ENP, extending from the southern extremity of the Seepage Collector and Levee to the midpoint of the proposed L-31N tieback levee (1994 GRR). Proposed structural alternatives for the new

tieback levee each enclose some degree of designated critical habitat for this species. Alternative 4, as described, converts the least amount of wetland habitat within the detention zone in comparison to other structural alternatives and minimizes losses to designated critical habitat. However, this alternative places disturbed and rock-plowed agricultural lands (vulnerable to exotic plant establishment) into ENP management by locating the tieback levee alignment to the east (up-gradient) of these lands. This presents an undesirable maintenance consequence to ENP management. Alternative 3, as described, also minimizes conversion of ENP wetlands, but involves greater losses to designated critical habitat than Alternative 4. The "No Action" alternative would not convert any habitat, providing the least adverse impacts of all proposed alternatives. However, the "No Action" alternative provides no hydrologic improvements to the eastern Everglades. To appropriately evaluate these alternatives, additional information regarding hydroperiod, affected habitat acreage, borrow/fill site locations, and sparrow demographics will be necessary.

SITE INVESTIGATION

An on-site investigation was performed on 14 and 15 September 1998 by staff from FWS (Jim Boggs), ENP (Olon Bass), and COE (Jon Moulding). Since much of the project area is easily accessible from existing roads, observations were made from roadside to expedite information collection and minimize disturbance to natural wetlands. Weather conditions on 15 September compromised field observations and necessitated that activities be confined to canal service roads. Natural resources, existing land use, and COE facilities and operation were observed and discussed in conjunction with ENP resource management objectives and proposed project construction and operation.

Existing conditions at the project site are most influenced by the modification of normal hydrologic regimes controlled through the operation of a system of levees, pump stations, and canals of the C-111 segment of the Central and South Florida Project. These water control facilities provide flood protection and water supply to developed lands east of L-31N, and alter natural hydrologic regimes in ENP lands to the west by increasing the rate of drainage. Rapid drainage of surface and subsurface waters of the Everglades through the C-111 canal system has decreased water levels and hydroperiod of wetlands in ENP, thereby contributing to increased incidence of wildfire, decline of the muhly prairie, and invasion of exotic vegetation (ie. Australian pine, *Melaleuca*, Brazilian pepper). Disturbances to wetland habitat caused by modifications to the normal hydrologic regime have, in-turn, adversely affected several species of birds, mammals and reptiles; some of which have since been Federally-listed as endangered or threatened species. Long-term alterations to normal hydroperiod were evident throughout the site investigation by the observation of abundant exotic trees and recent fire damage on ENP lands.

Decreases in hydroperiod have created relatively dry conditions in the eastern one-third of ENP, shifting vegetative species composition and negatively impacting the reproductive success of nesting birds such as the Cape Sable seaside sparrow, snail kite, and wood stork; all Federally-listed, endangered species. Although none of these species were observed in the project area

during the site investigation, marsh habitats within and adjacent to the project area provide necessary resources and are available to these species.

Observations during the site investigation indicate that much of the land within the project area is previously disturbed freshwater marl prairie which has been rock-plowed and is presently farmed for vegetables and fruits (tropical and citrus). Soils on these agricultural lands consist of pea-grain limestone gravel, very well-drained and unfertile. Rocky-glade wetland habitats which occur within the project area are short-hydroperiod marshlands dominated by grasses and sedges which have adapted to these well-drained rocky soils. Many of the wetland parcels within the project area also appear to be previously disturbed and support abundant stands of invasive Johnson grass. Moderately wet conditions were observed during site investigation, evidenced by shallow standing water produced by recent rainfall. Minor flooding occurred on 15 September due to heavy morning and afternoon precipitation.

There was mutual agreement among FWS, ENP, and COE participants that an increase to existing hydroperiod on lands in ENP would benefit the ecosystem. However, ENP personnel explained that caution should be used regarding the conveyance of flows directly to ENP lands. Point-source discharges to marshlands from pump stations are undesirable because they create local disturbance and do not mimic natural sheet flow. ENP staff also offered the following suggestions to improve hydrologic conditions within the C-111 basin of the ENP: 1) raise water level of L-31N canal, 2) cease any future construction of canals within Everglades region, 3) develop a levee alignment which follows natural topographical contours, and 4) develop overflow features on the L-31W levee which provide natural sheet flow into ENP lands to the west.

CONSERVATION MEASURES

The degree of impact to wildlife resources within the project area could be minimized by an operation designed to mimic natural hydrologic regimes and hydroperiod. Additionally, the Corps of Engineers (COE) should incorporate the construction of topographical features designed to enhance natural wetland communities into the design of the detention zone from S-332A to S-332D to offset direct impacts to affected lands between the tieback levees. Features designed to convey overflows to the west of the detention zone should be developed to provide evenly distributed sheet flow, avoiding point discharges.

RECOMMENDATIONS

The FWS provides the following recommendations regarding the proposed tieback levee and detention pond:

1. Incorporate topographical features within the entire detention zone (S-332A to S-332D) which are designed to enhance and promote the perpetuation of native flora and fauna. These features include the creation of small islands for nesting/roosting birds and excavation of

shallow sloughs for foraging birds, and deeper depressions as fish refugia during periods of low water.

2. Integrate elements of natural hydrologic flow regime and hydroperiod into the operation plan of the detention facility. Include overflow features which best provide natural sheet flow to ENP lands to the west of the proposed project.

3. Refine levee alignment to follow existing natural topographical contours, to whatever extent practicable.

4. Provide the FWS and ENP with all applicable hydrologic modeling data, borrow/fill site locations and size, and acreage of affected habitat prior to the selection of any of the proposed alternatives. Please provide this information for incorporation into the FWCA Report.

5. Provide the FWS with the most recent Cape Sable seaside sparrow demographic data for lands within the scope of the project. Please provide this information for incorporation into the FWCA Report and section 7 consultation.

6. Maintain an annual monitoring program for subpopulations of the Cape Sable seaside sparrow which use designated critical habitat adjacent to and within the project area. Coordinate monitoring with FWS and NPS.

7. Develop a management plan for the detention zone to include:

a. exotic plant and animal control
b. native re-vegetation activities
c. maintenance of water quality
d. monitor for fish and wildlife

Thank you for this opportunity to provide recommendations for beneficial actions COE can take on behalf of efforts to restore Everglades habitat within ENP and assist in the conservation and recovery of South Florida's threatened and endangered species. Please feel free to contact me or Fish and Wildlife Biologist Jim Boggs at (561) 778-0896 if you have any questions regarding this letter.

Sincerely,

David L. Ferrell
Supervisor
South Florida Restoration Office

cc: Everglades National Park, Homestead, FL
South Florida Water Management District, West Palm Beach, FL
Florida Game and Freshwater Fish Commission, Vero Beach, FL
National Marine Fisheries Service, St. Petersburg, FL
Environmental Protection Agency, Atlanta, GA
GARD, FWS, Atlanta, GA
Florida State Supervisor, FWS, Vero Beach, FL
Field Supervisor, South Florida Field Office, FWS, Vero Beach, FL